



# EXCERPT FROM THE PROCEEDINGS

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### **Experience Catalysts: Understanding How They Can Help Fill the Acquisition Experience Gap for the Department of Defense?**

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## Preface & Acknowledgements

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During his internship with the Graduate School of Business & Public Policy in June 2010, U.S. Air Force Academy Cadet Chase Lane surveyed the activities of the Naval Postgraduate School's Acquisition Research Program in its first seven years. The sheer volume of research products—almost 600 published papers (e.g., technical reports, journal articles, theses)—indicates the extent to which the depth and breadth of acquisition research has increased during these years. Over 300 authors contributed to these works, which means that the pool of those who have had significant intellectual engagement with acquisition issues has increased substantially. The broad range of research topics includes acquisition reform, defense industry, fielding, contracting, interoperability, organizational behavior, risk management, cost estimating, and many others. Approaches range from conceptual and exploratory studies to develop propositions about various aspects of acquisition, to applied and statistical analyses to test specific hypotheses. Methodologies include case studies, modeling, surveys, and experiments. On the whole, such findings make us both grateful for the ARP's progress to date, and hopeful that this progress in research will lead to substantive improvements in the DoD's acquisition outcomes.

As pragmatists, we of course recognize that such change can only occur to the extent that the potential knowledge wrapped up in these products is put to use and tested to determine its value. We take seriously the pernicious effects of the so-called “theory–practice” gap, which would separate the acquisition scholar from the acquisition practitioner, and relegate the scholar's work to mere academic “shelfware.” Some design features of our program that we believe help avoid these effects include the following: connecting researchers with practitioners on specific projects; requiring researchers to brief sponsors on project findings as a condition of funding award; “pushing” potentially high-impact research reports (e.g., via overnight shipping) to selected practitioners and policy-makers; and most notably, sponsoring this symposium, which we craft intentionally as an opportunity for fruitful, lasting connections between scholars and practitioners.

A former Defense Acquisition Executive, responding to a comment that academic research was not generally useful in acquisition practice, opined, “That's not their [the academics'] problem—it's ours [the practitioners']. They can only perform research; it's up to us to use it.” While we certainly agree with this sentiment, we also recognize that any research, however theoretical, must point to some termination in action; academics have a responsibility to make their work intelligible to practitioners. Thus we continue to seek projects that both comport with solid standards of scholarship, and address relevant acquisition issues. These years of experience have shown us the difficulty in attempting to balance these two objectives, but we are convinced that the attempt is absolutely essential if any real improvement is to be realized.

We gratefully acknowledge the ongoing support and leadership of our sponsors, whose foresight and vision have assured the continuing success of the Acquisition Research Program:

- Office of the Under Secretary of Defense (Acquisition, Technology & Logistics)
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We also thank the Naval Postgraduate School Foundation and acknowledge its generous contributions in support of this Symposium.

James B. Greene, Jr.  
Rear Admiral, U.S. Navy (Ret.)

Keith F. Snider, PhD  
Associate Professor



## Panel 20 – Investing in People: Research in Workforce Professionalization

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Thursday, May 12, 2011	
1:45 p.m. – 3:15 p.m.	<p><b>Chair: Dr. James McMichael</b>, Vice President, DAU</p> <p><b><i>Developing Program Management Leadership for Acquisition Reform</i></b></p> <p>Neil McCown, USN</p> <p><b><i>Experience Catalysts: Understanding How They Can Help Fill the Acquisition Experience Gap for the Department of Defense?</i></b></p> <p>Robert Tremaine, DAU</p> <p><b><i>Program Manager Professionalization: The “Return on Investment” Question</i></b></p> <p>Keith Snider, NPS</p>

**James McMichael**—Vice President, Defense Acquisition University (DAU). As vice president, Dr. McMichael is responsible for the university’s delivery of learning products through the DAU regions and the Defense Systems Management College, curricula development, online learning programs, learning technology, and library services.

Prior to assuming his current position, Dr. McMichael served 14 years as the director of acquisition education, training, and career development in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. In that position, Dr. McMichael was the principal proponent for workforce management, and he formulated policies and programs to ensure the quality and professionalism of the workforce. Throughout his career, Dr. McMichael has also served as the technical director for the Navy Personnel Research and Development Center in San Diego, CA; the special advisor for manpower, personnel, and training with the Office of the Chief of Naval Operations; and the chairman of the Psychology Department at Long Island University, NY, where he taught for eight years.

Dr. McMichael is a graduate of Princeton University, and he received his advanced degrees at the University of Delaware. He was a fellow in the Woodrow Wilson School of Public and International Affairs at Princeton University from 1982 to 1983.



# Experience Catalysts: Understanding How They Can Help Fill the Acquisition Experience Gap for the Department of Defense?

**Robert Tremaine**—Associate Dean, Outreach and Mission Assistance, Defense Acquisition University West Region. Col. Tremaine is a retired Air Force colonel and has over 26 years of experience in air, missile, and space weapons systems acquisitions. He holds a BS from the U.S. Air Force Academy and an MS from the Air Force Institute of Technology. Col Tremaine is Level III certified in both program management and systems planning, research, development, and engineering. [Robert.Tremaine@dau.mil]

## Abstract

This paper addresses the issues of experience and professional certification, and explores the following questions: Can experience be accelerated to bolster certification effects across the range of professions? Are there any innovative methodologies that can appreciably accelerate experience and shrink the time it takes to achieve it? If so, many professionals, including Defense Acquisition Workforce personnel, could be the beneficiaries since their certification levels rely heavily on experience (in addition to education and training). The Defense Acquisition Workforce Improvement Act of 1990 became law 21 years ago, but experience shortfalls are still surfacing. If left alone, these experience shortcomings could result in acquisition limitations and delay the fielding of essential systems that warfighters need. It is time to take another look at the experience variables that are extremely important in the acquisition workplace performance equation. What matters and what doesn't?

## Introduction

In any business, trade, or profession, experience matters, especially when our lives depend on it. Not surprisingly, the public tends to look at experience as an absolute necessity when personal safety is paramount. Professions like the medical, transportation, and construction industries rely heavily on experience. They take considerable time to qualify their respective corps through various experience incubators like internships, fellowships, apprentices, etc.—all on-the-job means, and for obvious reasons. They learn by “doing.” Without doing, these personnel may face challenges later that they cannot easily overcome when “know-how” matters the most. As a result, and for practical reasons, many of these professions use quantitative measures such as “hours” or “years.” They serve as experience markers. It not only gives these trades more confidence—it also gives the public more confidence. After all, assured and demonstrated competencies are a vital necessity since an experience failing could lead to life-threatening consequences. No one wants to rely solely on fatal experiences to avoid future catastrophes.

Many of these same professions are also backed up by licensing boards focused on maintaining minimum standards. For example, burgeoning surgeons spend many years practicing their craft under the watchful eye of experienced surgeons before they ever get sanctioned as qualified surgeons. Entry-level military and commercial airline pilots must earn a minimum number of successful flight hours under a wide range of operating conditions before they are allowed to climb into the left seat (from the right seat) as qualified pilots-in-command. To make sure they do not become an electrical danger to themselves or anyone else, apprentice electricians require a minimum number of years as apprentices



under the close supervision of a senior lineman before they go solo installing or repairing electrical lines. In all these cases, fundamentals like educational achievement, aptitude, previous job performance, and so forth serve as initial career screening mechanisms. However, the existence of a certification or qualification component tightly connected to experience levels seems to be a distinguishing characteristic that makes these particular professions different enough from those without one. Certification also serves as the basis for expected outcomes. But, can experience be accelerated to bolster certification effects across the range of professions? Are there any innovative methodologies that can appreciably accelerate experience and shrink the time it takes to achieve it? If so, many professionals, including Defense Acquisition Workforce (DAW) personnel, could be the beneficiaries since their certification levels rely heavily on experience (in addition to education and training). Twenty-one years after the Defense Acquisition Workforce Improvement Act (DAWIA) of 1990 became law, experience shortfalls are still surfacing. If left alone, these experience shortcomings could result in acquisition limitations and delay the fielding of essential systems that warfighters need. It is time to take another look at the experience variables that are extremely important in the acquisition workplace performance equation. What matters and what doesn't?

## Methodology

This investigative effort used a phenomenographical methodology (i.e., aggregate views drawn from personnel experiences) by surveying a wide range of acquisition professionals (e.g., program managers, systems engineers, logisticians, contract specialists, and budget, cost estimators, and financial managers) in various product lines (e.g., ships, tanks, aircraft, satellites, munitions, information, warfare, etc.) and services (e.g., IT, research, security, etc.). This investigation sought their views on experience catalysts. More specifically, what mattered more to them than others, what didn't matter, and why? The answers to these key questions would confirm key experience solutions that could help fortify the capabilities of the professional acquisition corps and combat the uncertain and sometimes turbulent programmatic challenges that lay ahead.

The survey separated experience catalysts (EC) into three tiers: foundational (Tier 1 [T1]), enhancers (Tier 2 [T2]), and accelerators (Tier 3 [T3]). Decomposing them into these tiers would afford a more definitive analysis later. This partitioning might also lend itself to a greater understanding of experience gateways as well as the prevailing obstacles (real or artificial) that could be interfering (in the form of barriers) with experience gains along the acquisition "experience building" pathway. Mathematically, the total sum of these factors would look something like the following:

$$EC = \sum_{i=1}^n (\text{Tier } 1_i + \text{Tier } 2_i + \text{Tier } 3_i) - \text{Barriers}_i \quad (1)$$

## Findings

1,414 defense acquisition personnel (1,236 government, 152 military, and 26 support contractors) responded to this survey. The results reinforced both the importance and influence of a wide range of experience catalysts operating inside and outside of the workplace. The data exposed a few that were not operating at expected levels. The results also generated several "ahas."

### ***1st Tier: Experience Foundations***

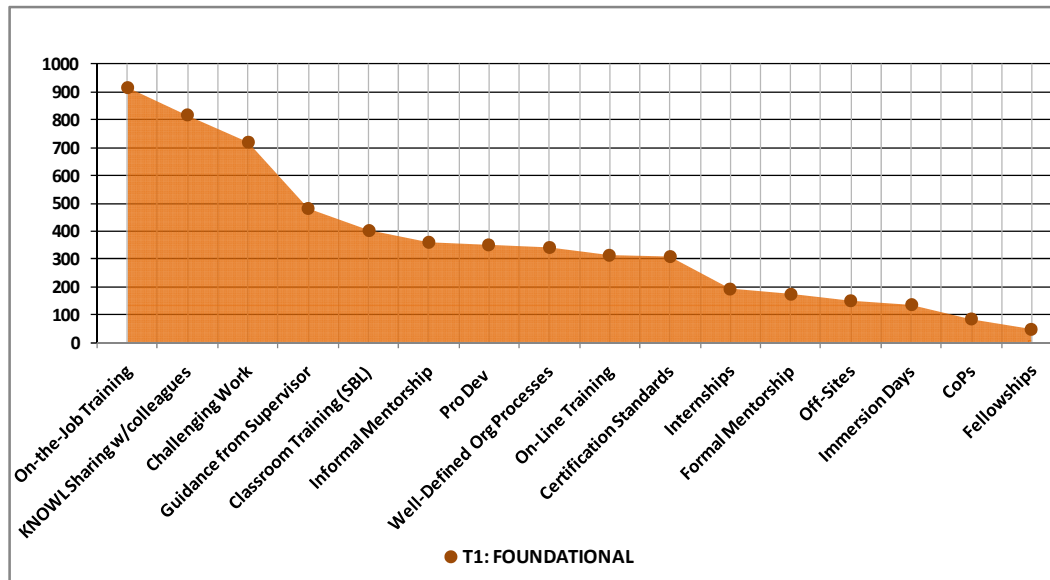


Many professions rely on sturdy and enduring academic *foundations*. The acquisition profession is no different. Depending on the specific functional area(s) a member of the DAW pursues, these academic foundations tend to serve as *formal* learning tollgates before personnel arrive *on the job*. Of course, well-described job competencies reinforced by definitive performance expectations ensure that personnel are properly placed and appropriately guided. Nonetheless, systems engineers should be ready to apply engineering basics; contract specialists should be ready to carefully evaluate written agreements; and cost estimators should be steeped enough in math to comfortably work with budget and cost estimate equations. Despite the profession, these *formal* foundational learning gates are less than half of the total learning equation in the workplace. The remainder occurs at the workplace. In fact, more than 70% of most new knowledge and skills actually take place at work through a combination of *informal* and *incidental learning* (Good & Brophy, 1990). This is where the workforce tests their inherent capabilities every day. Where do experience catalysts play into all of this? They appear to take root more in the context of these informal and incidental learning methods (i.e., “learning by doing”). If that is the case, what did the DoD acquisition workforce actually say about the effectiveness and value of these experience catalysts early on “in” the job? What mattered most?

The survey respondents were asked to rate the importance of a broad range of experience factors. The majority have been well-documented by research. Others, like *off-sites* and *immersion days*, have not been well documented, but for purposes of this investigation, they have been sub-categorized as *knowledge-sharing* components.

As Figure 1 indicates, the results were consistent with previous research. *On-the-job training* mattered the most. Active involvement in the experience strengthened their experience foundations according to many respondents in this study. *Knowledge sharing* with colleagues and *challenging work* trailed very closely behind. Several respondents felt “learning from others’ experiences reinforced their own.” *Knowledge sharing* can have far-reaching considerations since knowledge is generally seen as “the most strategically-important resource which organizations possess and a principal source of value creation” (Cummings, 2003). *Supervisory guidance* represented the next data point. One of the respondents echoed the views of others. She claimed that “having a well trained supervisor who is a great teacher, allowing me to fly semi-alone...built [my] confidence, knowledge and courage to complete more challenging tasks.” The next lower grouping included *DAWIA classroom training*, *formal mentorship*, *professional development*, *well-defined organization processes*, *on-line training*, and *certification standards*. Unexpectedly, three of these seven (*DAWIA training*, *well-defined organizational processes*, and *certification standards*) all scored noticeably low and could be explained for several reasons.





**Figure 1. T1 Experience Catalysts**

Why the low score for DAWIA *classroom training*?

- Its value could be muted compared to other more dominant experience catalysts. Some respondents felt classroom experience will “never be able to replace of OJT, mentoring or knowledge sharing at work.” Others emphasized that DAWIA training is “rather generic and doesn't actually teach enough of the job specifics.” In other words, the training could be too general in nature.
- Students might be showing up too early for training in their career and may not be quite ready.
- Students might be showing up too late for training. Several respondents noted that it's difficult to keep up with additional training demands.
- Students forgot what they learned before they could apply it.
- It could have a looser connection to experience in its current form.
- Its benefits might not be well understood, especially the connection to performance outcomes—something the General Accountability Office (GAO) recently questioned.

In a recent report, the GAO declared that without appropriate outcome metrics, acquisition Technology & Logistics programs will be “unable to demonstrate how certification training actually contributes to organizational performance results” (GAO, 2010). Inarguably, what the GAO underscored is tough to demonstrate without a comprehensive program that tracks behavioral changes at work. The discovery that as much as 90% of training resources are spent on the design, development, and delivery of training events only yield 15% on-the-job application (Brinkerhoff, 2006) makes training an easy target for additional examination. In the context of Donald Kirkpatrick's well-known Four Levels of Learning Evaluation, the first two learning levels (Reaction [I] and Learning [II]) have been relatively easy to demonstrate during the classroom delivery timeframe. Level III (Behavior) and Level IV (Results) have been a lot tougher to validate. Some researchers assert that if Level 3 evaluations were conducted as part of existing career development and performance reviews, then it might “improve, explain, control, and predict performance although managers must be willing to observe, document, and evaluate the desired

behaviors” (Mayberry, 2005). Brinkerhoff and Montesino (1995) found even modest supervisor involvement before and after the training can have a significant impact on whether trainees use their newly developed skills” (Bassi & Russ-Eft, 1997). Other studies have shown that “the more managers are trained in how to support and coach the skills their employees learn, the more those skills will be used and sustained in the workplace” (Leimbach & Marinka, 2009).

Decades ago, the DoD instituted a formal performance evaluation program for all its employees to signal the importance of training. In 1958, the Government Employees’ Training Act expected training would improve performance and prepare personnel for future advancement. In 1962, the Salary Reform Act required an “acceptable level of competence” determination for granting General Schedule within-grade increases; provided for the denial of the within-grade increase when performance is below the acceptable level; and authorized an additional step increase for “high quality performance.” While these formal evaluation measures have continued to evolve, they have not specifically traced personnel performance to training activities. It has been generally assumed that training focuses on the required knowledge, skills, and abilities necessary to perform and improve assigned duties within the workplace. In fact, there is plenty of literature that substantiates this probabilistic connection, but there are so many other intervening factors that complicate the relationship, including individual attitude, motivation, cultural realities, learning self-efficacy, age, etc., that make a deterministic forecast more difficult (Bassi & Russ-Eft, 1997). Other factors ebb and flow, such as team structures, incentives, use of analytic tools for capturing and analyzing information, and psychological safety, and tend to moderate the influence between experience and performance improvement (Edmondson, 1999). In the private business sector, training has been found to have a positive impact on profitability (Cosh & Hughes, 2003). Many years ago, the DoD made a similar association for its acquisition workforce and invested heavily in training. It still takes training very seriously.

As far as other experience foundation catalysts go, there are several others that require further introspection.

Why the low score for well-defined organizational processes?

- Personnel might believe these processes are already embedded in the direction they received and might not necessarily see them as a distinctive element.
- Personnel might be more sharply focused on their day-to-day tasks at hand and not find them a necessity (yet).
- Personnel haven’t found the ones in place to represent much value.

Why the low score for certification standards?

- They could be generally misconstrued.
- They don’t go far enough and/or are too watered down to be significant.
- The connection to accountability might not be readily apparent.

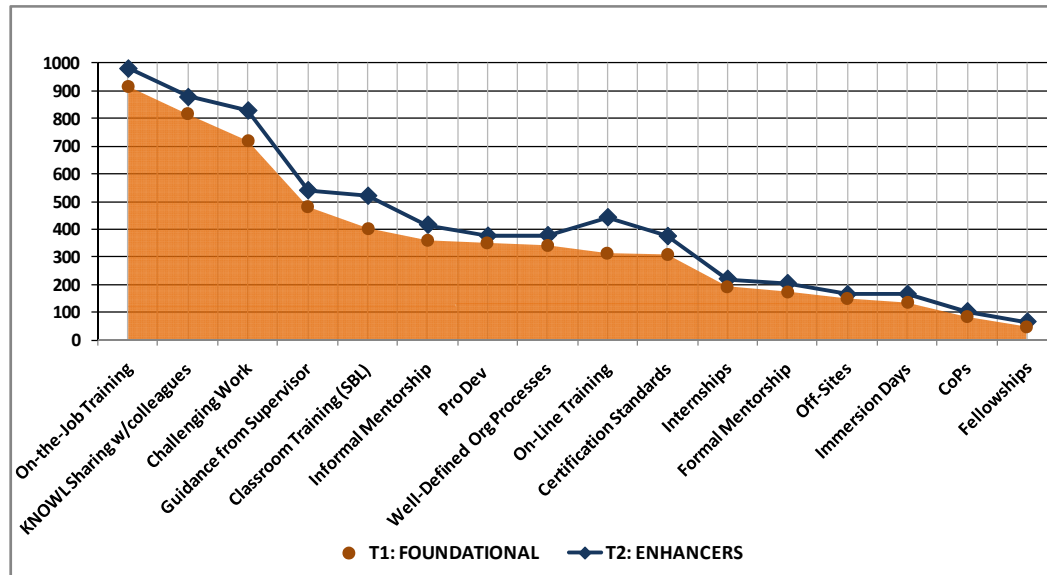
Why the low score for *communities of practice*, another form of knowledge sharing?

- Personnel may not find it a rich source of useful knowledge.
- Personnel may not find the information current enough.
- Personnel may not be aware of its existence.
- Information may not be appropriately curated (e.g., information has not been properly maintained or trusted for use).
- It’s missing the social interaction that generally creates more value.



## 2<sup>nd</sup> Tier: Experience Enhancers

The impact of experience catalysts expressed as experience *enhancers* seemed relatively consistent to those described as foundational (Figure 2) and were very closely correlated. *On-the-job training* didn't diminish in importance; neither did *knowledge sharing*, *challenging work*, nor *supervisory guidance*. In relative terms, they all rose slightly. While still having noticeably fewer experience catalysts than the big three, both *classroom training* and *on-line training* rose much more noticeably in relative terms.



**Figure 2. T1 and T2 Experience Catalysts**

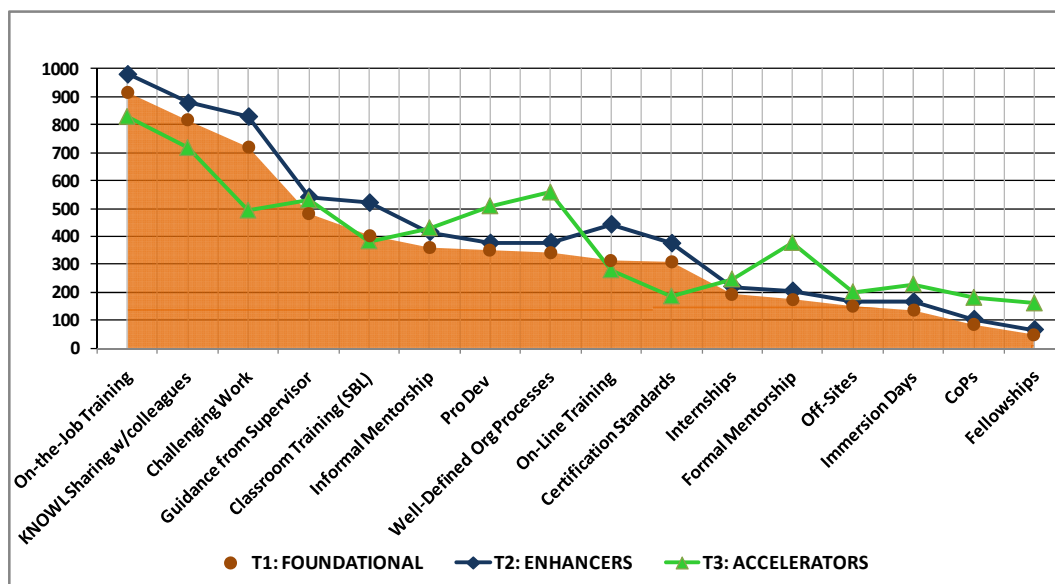
The uncharacteristic rise in *on-line training* could be attributed to (a) how *on-line training* complements certain experience foundations previously forged or (b) the presence of more effective delivery methods (e.g., greater interactive features and less of a “page turner,” perhaps). Traditionally, DAWIA *classroom training* that uses scenario-based learning (SBL) methods enjoys more of an advantage than other classroom methodologies. It gives students a chance to practice representative training scenarios alongside their peers and to reflect *about* their jobs while they are *away* from their jobs. Reflection and practice have been found to have a significant impact on experiential learning of this kind. Long ago, David Kolb, an American educational theorist, reported that in order to gain genuine knowledge from an experience, the learner “must be able to reflect on the experience as well as be willing to get actively involved in the experience; possess and use analytical skills to conceptualize the experience; and possess decision making and problem solving skills in order to use the new ideas gained from the experience” (Kolb, 1983). Classroom training that employs SBL does just that and is used extensively these days since it adheres to a performance improvement imperative rather than the acquisition of just knowledge and skills (Schulz, 2001). SBL also promotes defining moments by exposing an individual's strengths and weaknesses. By imitating something real, SBL has shown to pay huge experience dividends by igniting the senses. Many have already found their way into organizations that vitally depend on training. Soaked with real-world conditions, they test an individual's ability to demonstrate how certain critical competencies prevail (or not). Captain Chesley “Sully” Sullenberger III, a former U.S. Airways seasoned pilot, experienced the benefits first-hand. He spent the better part of two full days every six months at the controls of an Airbus 319 flight SBL simulator while several lifetimes' worth of disasters broke loose around him

(Budiansky, 2009). At what point was he prepared for a water landing on the Hudson River when he piloted Flight Number 1549 on January 15, 2009? How many years did it take for him to turn a potential disaster into a miracle? He met his flying experience markers (in years), but up to the moment before he set his aircraft on the Hudson, a SBL simulator allowed him to fly at the edge of the flight envelope and test him for just about any contingency—except a water landing. The Airbus 319 isn't a watercraft, but Captain Sully knew he had to treat it like one, given the threatening outcome of two failed engines. His many years as an experienced line pilot, combined with recurring scenario-based simulator training and with the ability to handle “the unexpected,” helped him save 155 lives that day. Aside from their long-standing presence in the flying community, as long as the experience is seen as realistic and valid, simulators also show promise for many other professions that require continuous practice and steady reinforcement.

Virtual simulators were previously an expensive proposition. Not anymore. Now, high-fidelity virtual simulations and the introduction of gaming that even uses 3-D capability are relatively inexpensive and widespread. They could eventually become commonplace in many workplace settings. When that occurs, they might have a noticeable impact on experience gains for many professions by letting workers safely practice a wide range of challenges unique to their own areas of expertise *on the job*.

### 3<sup>d</sup> Tier: Experience Accelerators

The data associated with this last tier resulted in several interesting surprises. First, there were fewer correlations with 1<sup>st</sup> and 2<sup>nd</sup> Tier factors. Second, *professional development, well-defined organizational processes, and formal mentorship* took a marked leap in importance as accelerators (Figure 3). Third, *challenging work* and *certification standards* took visible dips. What caused certain experience catalysts to rise in importance and others to fall?



**Figure 3. T1, T2, and T3 Experience Catalysts**

The following could help explain the T3 experience factors that rose in importance:

- The rise in professional development (i.e., off-the-job training) could be attributed to the potential knowledge gains found outside the workplace on

supplementary/complementary subjects and/or interactive knowledge-sharing venues with leaders in their same fields. Some respondents emphasized the importance of training with industry and other professional development opportunities.

- The rise in well-defined organizational processes could be attributed to the tangible benefits of more definitive, written organizational guidance that might have been less obvious before. Research has shown that learning from direct experiences depends critically on organizational processes that generate experiences. (Schultz, 2001)
- The rise in formal mentorship could be attributed to personnel seeking advice and counsel from more seasoned professionals in their same career fields in their own work environment. One respondent commented that “having a hands-on mentor made a world of difference.” Another stated that “having a hands-on mentor at the start of their career would have made a world of difference.”

A few possibilities could help explain the T3 experience factors that dropped in importance.

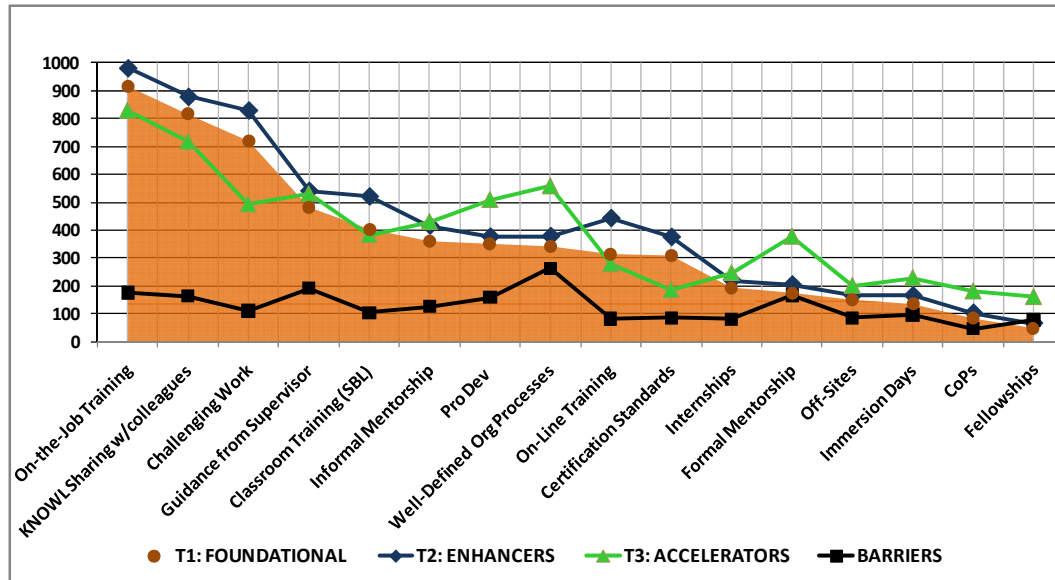
- The dip in challenging work could be attributed to the following:
  - The work at hand may no longer be challenging enough and could be holding people back.
  - Good work is rewarded with more work and eventually could feel more like work overload without the time to adequately learn it.
  - The complicating effects of increased administrative burden (seen by some as more work) is too much sidebar work to promote any real experience gains.
- The dip in certification standards (and the lowest of all experience accelerators) could be attributed to the following:
  - Poorly described benefits—some personnel may not easily see the future professional and personal payback.
  - Personnel may also find the achievement thresholds too low or less relevant to their current jobs, as many of the respondents stated.
  - The time they were awarded their certification level was long ago.

## Barriers

Over time, experience undeniably prepares the workforce for the challenges ahead. However, past experience can also artificially interfere with the need for innovation and modernization, something the DAW or any other profession can least afford. Epistemologists (who study the *theory of knowledge*) might argue that knowledge, skills, and attitudes (KSAs) are so tightly connected to experience that they could become a little too grounded in yesterday's beliefs and dismiss the truths that might no longer apply. In other words, the same attributes that yield conventional wisdom could sometimes produce fixed mindsets, superstitious learning (e.g., single perspectives, learning the wrong things), competency traps, and erroneous inferences (Levitt & March, 1988). Before 1947, engineers believed the speed of sound represented a physical barrier for aircraft (and pilots) because of the formation of a violent shock wave that would dramatically increase drag, induce uncontrollable shaking, lose airlift, and eventually cause complete flight control failure. Placing a man on the Moon then must have been an absolutely wild idea. That all changed when Chuck Yeager broke the sound barrier in the Bell X-1 “Glamorous Glennis” on October 14, 1947; and when Neil Armstrong walked on the Moon on July 20, 1969.



As previously indicated, this research study also looked at the presence of barriers that could be interfering with experience gains. The respondents were asked if the lack of or reduction in these experience catalysts served as barriers. As Figure 4 shows, the barriers followed a close inverse correlation to experience accelerators. These barriers did not necessarily predominate, but they did highlight a couple of areas worth further examination.



**Figure 4. T1, T2, and T3 Experience Catalysts & Barriers**

The lack of *well-defined organization* processes (also seen as an experience accelerator when visibly present) were the most prominent and could be attributed to

- outdated processes that no longer apply;
- reduced support for existing organizational processes;
- ambiguity that certain key organizational processes even exist; and
- poorly conveyed guidance without adequate explanation or appropriate justification (One respondent stated that the lack of published work processes curbed his experience gains).

While less of a barrier, although still noticeable, the lack of *formal mentorship* (and also seen as an experience accelerator when visibly present) emerged as a barrier, suggesting that some personnel might need more coaching from more senior personnel whom they trust and respect.

The lack of participation in *communities of practices* (CoPs) was considered neither a barrier nor a substantial experience factor in any one of the three tiers. While CoPs can give access to a tremendous set of colleagues steeped in relevant knowledge and experience, they appear to have less of an impact on experience growth than expected.

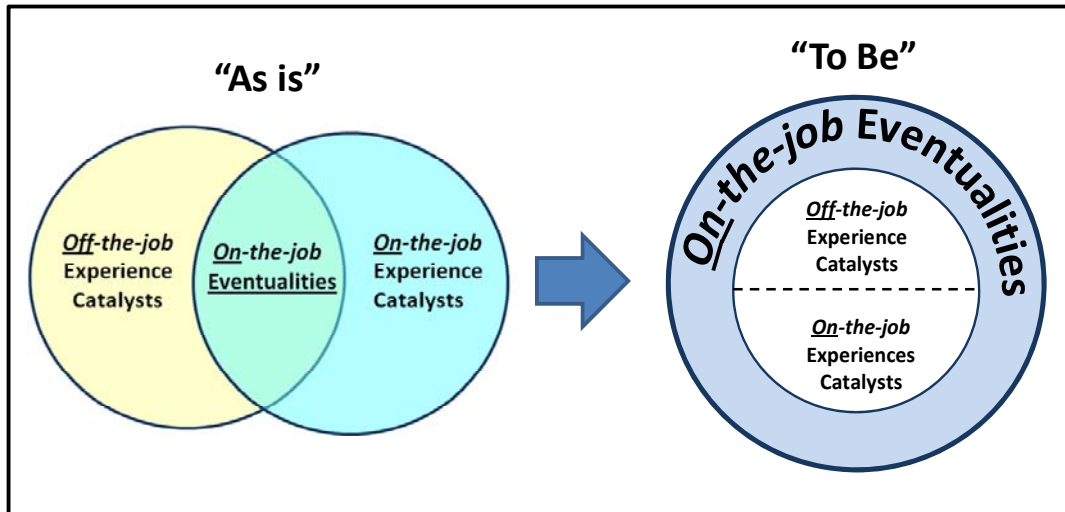
*Certification standards* were not seen as a barrier, suggesting that the workforce did not necessarily see them as either inhibiting experience gains or helping to achieve them.

## Recommendations

The data in this study confirmed the substantial influence of certain experience catalysts where they tend to predominate—in the workplace. Understanding the correlation and value of these high flyers can have a marked impact on individual performance and

acquisition outcomes if fully exploited. The experience catalysts operating in a less influential state could perhaps have a noticeable impact as well. If appropriately recognized (and in some cases, either clarified or [re]energized), they could also represent a powerful force multiplier for even more experience gains.

The acquisition workforce who participated in this study re-validated the major experience gains achieved by work-related experience catalysts. Accordingly, the sooner that formal training and informal training converge, the greater the impact off-the-job training will have. More importantly, however, is the convergence between *on-the-job* and *off-the-job* experience catalysts. When these two converge, they will better prepare the workforce for many more *on-the-job* eventualities (Figure 5).



**Figure 5. Convergence of Off-the-Job and On-the-Job Experiences**

Convincing organizations to fully grasp the actuality that they also serve as informal *learning organizations* where experience really takes root (i.e., *on the job*) could serve as a crucible for many experience catalysts. To meet that end, the following recommendations are warranted for defense acquisition operating units:

1. Codify acquisition operating units as *learning organizations*. Recognize the wide range of experience catalysts in use daily in the workplace and how they can favorably impact organizational outcomes. Institute and monitor with regular frequency the effect of these experience catalysts inside the organization, and adjust as required. Reduce the barriers that might be limiting certain experience gains. More specifically,
  - a. *Keep the work challenging and in perspective.* The acquisition workforce expects to be challenged—a key part to their professional growth. Workers tend to stay at the job and keep focused when the work is challenging and relevant. They leave when the work is not. Even when the tasks are sometimes repetitious, one respondent commented that they were different enough to strongly influence his motivation to stay since he also saw the impact he was having.
  - b. *Capitalize and promote knowledge sharing opportunities.* Build an organic, flexible, logical, current, and enduring information architecture warehouse that contains actionable information that

personnel can tap into freely. Give personnel easy access to key information sources of expertise. It deepens the workforce's knowledge base, expands perspectives, and fuels their experience engine. Without the open and continuous dialogue with peers, colleagues, and experts, competency gaps are more likely to occur and experience growth might plateau. Give project teams enough time to process new information. Personnel need slack time, organizational experience, and decision-making autonomy to fully benefit from access to new knowledge (Haas, 2006). Reward personnel for integrating and applying new knowledge when it creates organizational performance gains.

- c. *Get supervisors involved in the training process before and after the event.* With greater involvement by the supervisor, the training can have more relevance and create more favorable impacts back on the job. The most important work environment factors affecting training transfer include “discussions with the supervisor on the use of new learning, the supervisor’s involvement or familiarity with the training and positive feedback from the supervisor” (Nijman, 2011). Just as importantly, supervisors need to measure the performance outcomes of their personnel back on the job and show the dividends that training has produced. If the training is not hitting the mark, the first line supervisors would be the first to know and should clarify what needs to change through the appropriate channels. Supervisor commitment is crucial in validating the usefulness of training.
- d. *Clearly articulate and punctuate the effectiveness of organizational processes.* Keep processes current, effective, and relevant. Communicate their usefulness with regular frequency. Show the benefits. Consider revising or terminating the ones that have outlived their usefulness. Ask the workforce what needs to change (or not). They are just as much the owners of the process as anyone else.
- e. *Promote and support professional development opportunities.* It broadens the workforce’s knowledge base by giving them an opportunity to further develop themselves by reaping the experiences and effective practices of others. It creates new professional relationships and future experience networks that the workforce can leverage for years to come. It makes an organization stronger. It combats competency gaps and helps break down obsolete mental mindsets.
- f. *Promote mentorship.* Recipients can draw from the rich experiences from seasoned and respected leaders who possess a wealth of experience. Mentors encourage introspection. They motivate and inspire. They can help build a sustainable career pathway for personnel who are looking to widen their experience gains in both depth and breadth as they pursue their professional careers.
- g. *Recognize the efficacy of DAWIA training.* Ensure that workforce members are ready for the training and the training is meeting the needs of the workforce. Provide useful and timely feedback to the training communities.



- h. *Explore how immersion days and off-sites could promote and result in experience gains for personnel back on the job.* These very focused events cover a lot of ground, but the agenda should also include a component that targets individual and organizational performance. If they don't, then their connection to experience catalysts will remain nominal.

The following recommendations are warranted for defense acquisition training organizations:

- 2. Tighten the connection between *off-the job training* and *on-the-job training*. Learners need to understand the connection by witnessing the connection. The clearer the link between the skills taught and the skills required at work, the more required and newly acquired skills will stick. Make it truly experiential. Validate the learning objectives taught in class with outcomes in the field through a pain-free measurable follow-up initiative later in the field. Specialize and personalize the training whenever possible. Mimic their work environments as much as possible through methods that truly ignite their senses. In his book, *Talent is Overrated*, Geoff Colvin argues that “the road to exceptional performance is the result of deliberate practice” (Colvin, 2010) at what they need to know how to do.
  - a. *Maximize SBL.* Few training techniques mimic the actual work environment better. They test the workforce under realistic conditions and give the workforce a chance to show their grit without the threat of dangerous consequences. It also brings together both cognitive (e.g., mental processes, knowledge application) and affective (e.g., feelings, attitude) behaviors, thereby increasing the quality of the experience. “Everything depends on the quality of the training experience” (Dewey, 1998).
  - b. *Reinforce the benefits of certification standards.* Show the workforce the proof. While it should have bearing on upward mobility, it should not be the principal motivator. Too many acquisition professionals still do not see the returns. Many respondents saw getting their certifications as a way to get promoted and represented some of their motivation to take the course in the first place.
  - c. *Monitor the usefulness of communities of practices (CoPs) closely.* Either reinvigorate certain CoPs that have dropped sharply in popularity or replace them with other knowledge-sharing methods that show more promise. If seen as invaluable, personnel will frequent. CoPs can provide the workforce with tremendous access to a wider experience network, but it has to go beyond simple data transmission. Research evidence shows that knowledge-sharing methodologies involving people interactions are superior to those involving only document exchanges since knowledge often needs to be carefully adapted to a new context in order for it to be effectively utilized (Cummings, 2003).

## Conclusion

Today, in the face of declining budgets and increased public scrutiny of every dollar the DoD spends, the defense acquisition workforce is facing growing pressure to make

---



every dollar for its goods and services count. While experience has and will continue to be a fundamental component of the human capital development equation, it is vitally important that the DoD recognizes what experience catalysts matter the most to the acquisition workforce. Twenty years from now, experience inside the DAW will matter just as much as it did when Congress voted the Defense Acquisition Workforce Improvement Act into law over 20 years ago. The only difference might be that the seam between off-the-job training and on-the-job training will disappear. The warfighting community has already reaped the benefits of a similar transparency. Like few others, warfighters test their experience in warfighting exercises that mimic real-world conditions under fire. The experience they possess grew from what mattered most: They train like they fight and fight like they train. When the acquisition community at large is tested in a similar fashion through intellectual workouts that mimic *their* real-world conditions, performance outcomes will invariably rise.

The acquisition workforce would be well served if it recognizes the importance and influence of all experience catalysts operating in the upper bands and better leverages the confluence of them—even the ones operating in the lower bands. Granted, there are so many variables involved in the experience equation. However, the key in its application depends on whether the workforce

- continuously practices their craft at work in what has long been serving as on-the-job laboratories;
- applies their mettle with challenging work and supervisors close by, and with mentors not far away;
- consistently shares relevant information through a highly collaborative and open knowledge-sharing environment in a wide range of mediums;
- recognizes the necessity and compelling reason for and connection between training and certification; and
- continuously thinks beyond yesterday's truths without getting trapped by competency gaps that could prevent experimentation with more suitable alternatives.

Implementing these collective actions might just energize many of the experience catalysts enough to the point that they all start to behave as experience accelerators. "Experience is the name every one gives to their mistakes" (Wilde, 1892). The DoD's acquisition workforce can least afford any experience shortfall that results in weapon system delays for warfighters serving in harm's way. Warfighters depend on the DAW to get it right the first time, and that's the only "aha" that really matters.

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Research  
Objective

Background

Methodology

Findings

Recommendations  
& Conclusion

# Experience Catalysts: Understanding How They Can Help Fill the Acquisition Experience Gap for the Department of Defense



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Experience Catalysts: Understanding How They Can Help Fill the Acquisition Experience Gap for the Department of Defense?

By

Robert T. Tremaine

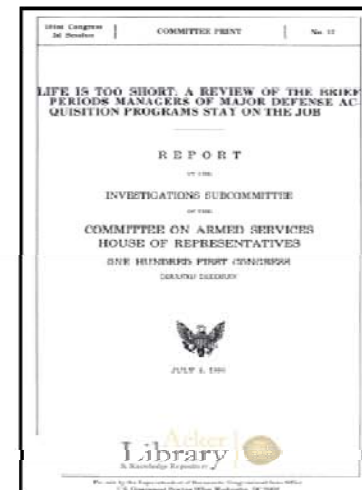
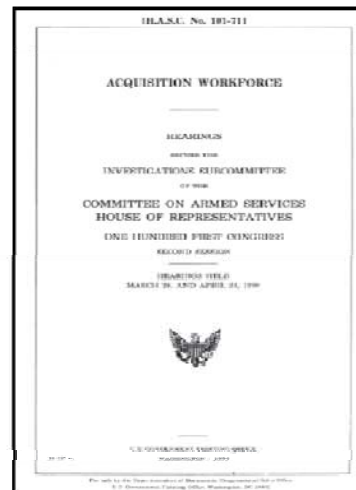
## INTRODUCTION

In any business, trade, or profession, experience matters especially when our lives depend on it. Not surprisingly, the public tends to look at experience as an absolute necessity when personal safety is paramount. Professions like the medical, transportation and construction industries rely heavily on experience. They take considerable time to qualify their respective corps through various experience incubators like internships, fellowships, apprentices, etc—all on-the-job means, and for obvious reasons. They learn by "doing." Without "doing" these personnel may face challenges later they can't easily overcome when "know-how" matters the most. As a result and for practical reasons, many of these professions use quantitative measures such as "hours" or "years." They serve as experience markers. It not only gives these trades more confidence—it also gives the public more confidence. After all, insured and demonstrated competencies are a vital security since an experience of failing could lead to life threatening consequences. No one wants to rely solely on fatal experiences to avoid future catastrophes.

Many of these same professions are also backed-up by licensing boards focused on maintaining minimum standards. For example, burgeoning surgeons spend many years practicing their craft under the watchful eye of experienced surgeons before they ever get sanctioned as qualified surgeons. Entry level military and commercial airline pilots must earn a minimum number of successful flight hours under a wide range of operating conditions before they are allowed to climb into the left seat (from the right seat) as qualified pilots-in-command. To make sure they don't become an electrical danger to themselves or anyone else, apprentice electricians require a minimum number of years as apprentices under the close supervision of a senior lineman before they go solo modelling or repairing electrical lines. In all these cases, linemen, electricians, etc. educational achievement, aptitude, previous job performance, etc. serve as initial career screening mechanisms. However, the existence of a certification or qualification component tightly connected to experience levels cannot be a distinguishing characteristic that makes these particular professions different enough from those without one. Certification also serves as the basis for expected outcomes. But, can experience be accelerated to bolster certification efforts across the range of professions? Are there any innovative methodologies that can appreciably accelerate experience and shrink the time it takes to achieve it? If so, many professionals including Defense Acquisition Workforce (DAW) personnel could be the beneficiaries since their certification levels rely heavily on experience (in addition to education and training). Twenty one years after the Defense Acquisition Workforce Improvement Act (DAWIA) of 1999 became law, experience shortfalls are still surfacing. If left alone, these experience shortcomings could result in acquisition limitations and delay the fielding of essential systems that warfighters need. It's time to take another look at the experience variables that are extremely important in the acquisition workplace performance equation. What matters and what doesn't?

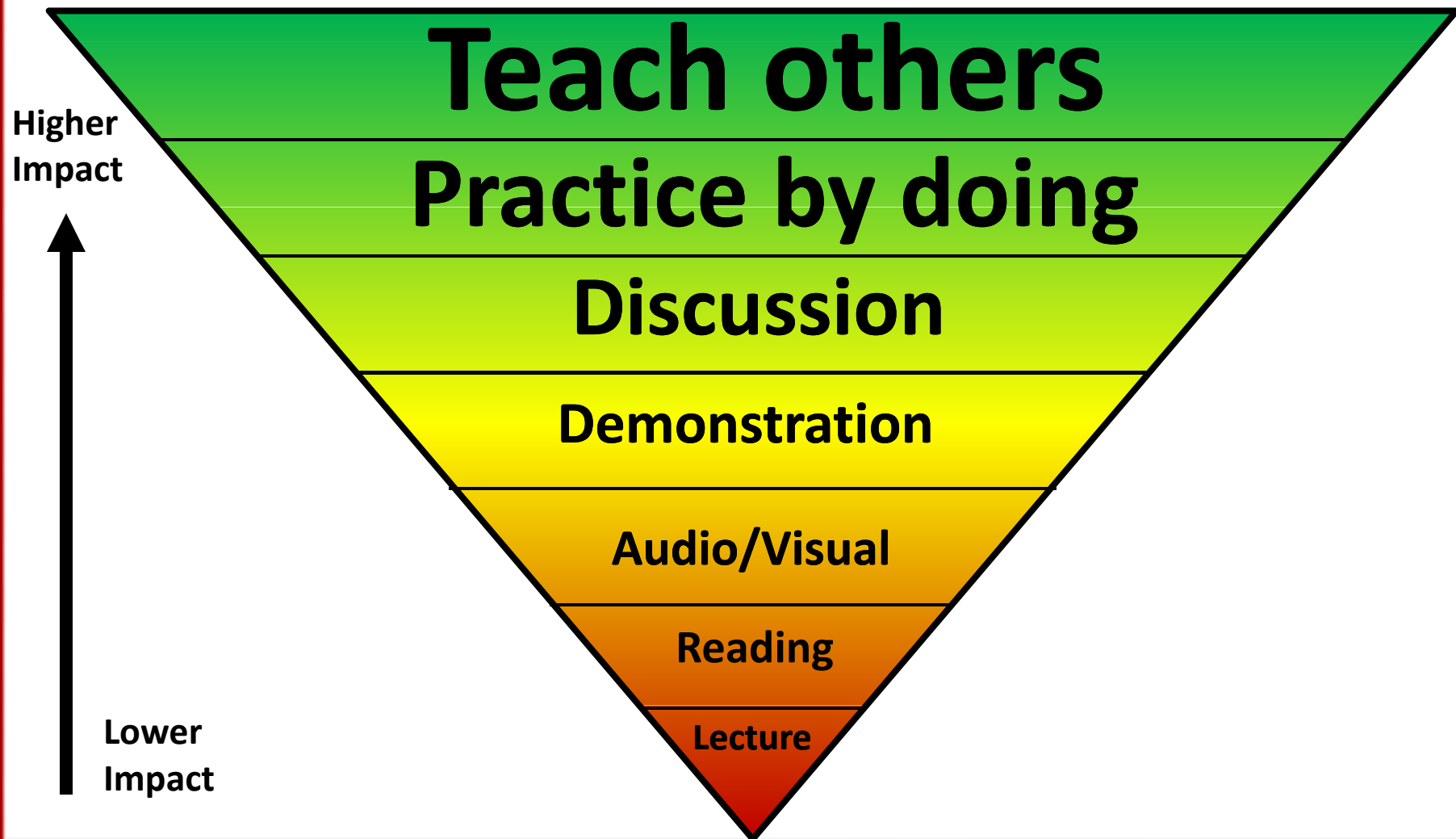
# The Defense Acquisition Workforce Improvement Act (DAWIA) Recognized the Importance of Experience:

Certification = Education + Experience + Training



FY 1991 National Defense Authorization Act

# How do we Grow experience?



# Where Does the Learning Take Place?

## Informal/Incidental

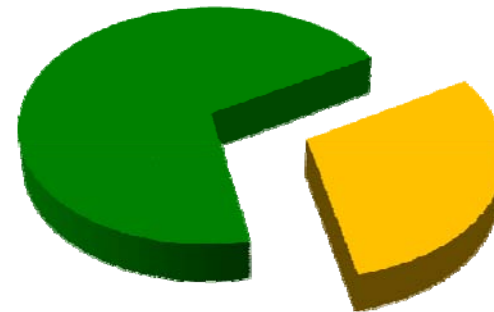
Degree which the learner has control of both the objective and the means.

**70% of learning takes place *on-the-job* (and not in a class)<sup>1</sup>**

## Formal

Degree which the institution has control of both the objective and the means.

Informal/Incidental = 70%



Formal = 30%

<sup>1</sup>"Learning in the Workplace," Marsick and Watkins, 1990.

# DAWIA and the Price of Professionalism by Keith Snider (1996)

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*... I offer two possible visions of the state of the acquisition workforce in 25 years:*

- Disconnected groups of specialists, each narrowly focused on their own particular piece of the acquisition puzzle, or
- A workforce that takes the broad view, bringing together diverse skills and perspectives to determine how best to fit together all the pieces of the puzzle

# What is an *Experience Catalyst*?



# What is an *Experience Catalyst*?

Practice

Social interaction

Knowledge

Dialogue

Experimentation

Mentorship

Technology

Coaching

Teaching

Observation

Policy

Processes

Guidebooks

## Background

$$Experience = f(x_1, x_2, x_3, x_4 \dots x_n)$$

### Experience Factors

Many Affect  
the  
Defense  
Acquisition  
Workforce  
(DAW)

$x_1$



Existing  
Workforce  
Capabilities

$x_2$

Gaps in Critical  
Skills &  
Competencies

$x_3$



Training  
Methods &  
Availability

$x_4$



Congressional  
Direction

$x_5$



Strategic  
Guidance  
& Plans

$x_6$



Implementation  
Methodology.  
Policy, Processes,  
& Procedures

$x_7$

Available Funding

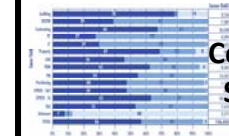
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\$?	\$?	\$?	\$?	\$?	\$?

$x_8$



Recruitment

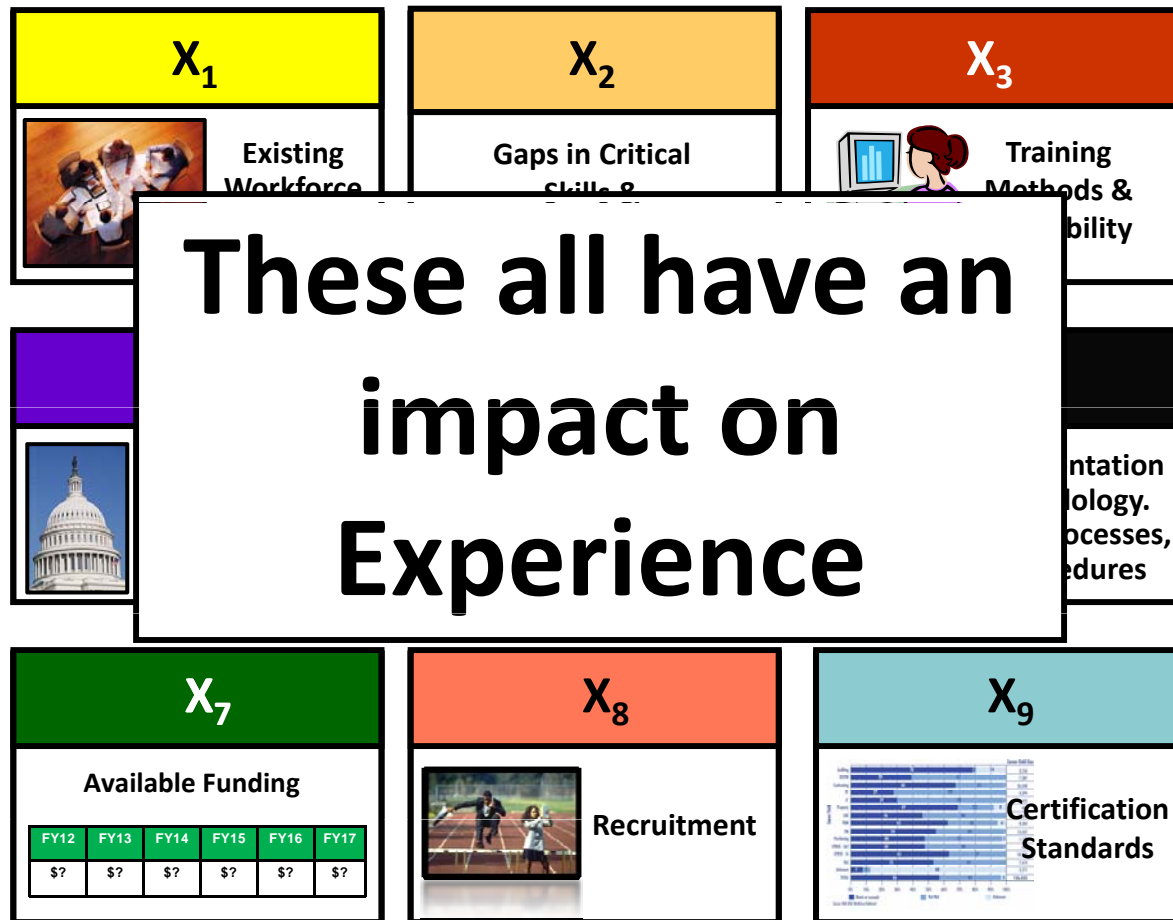
$x_9$



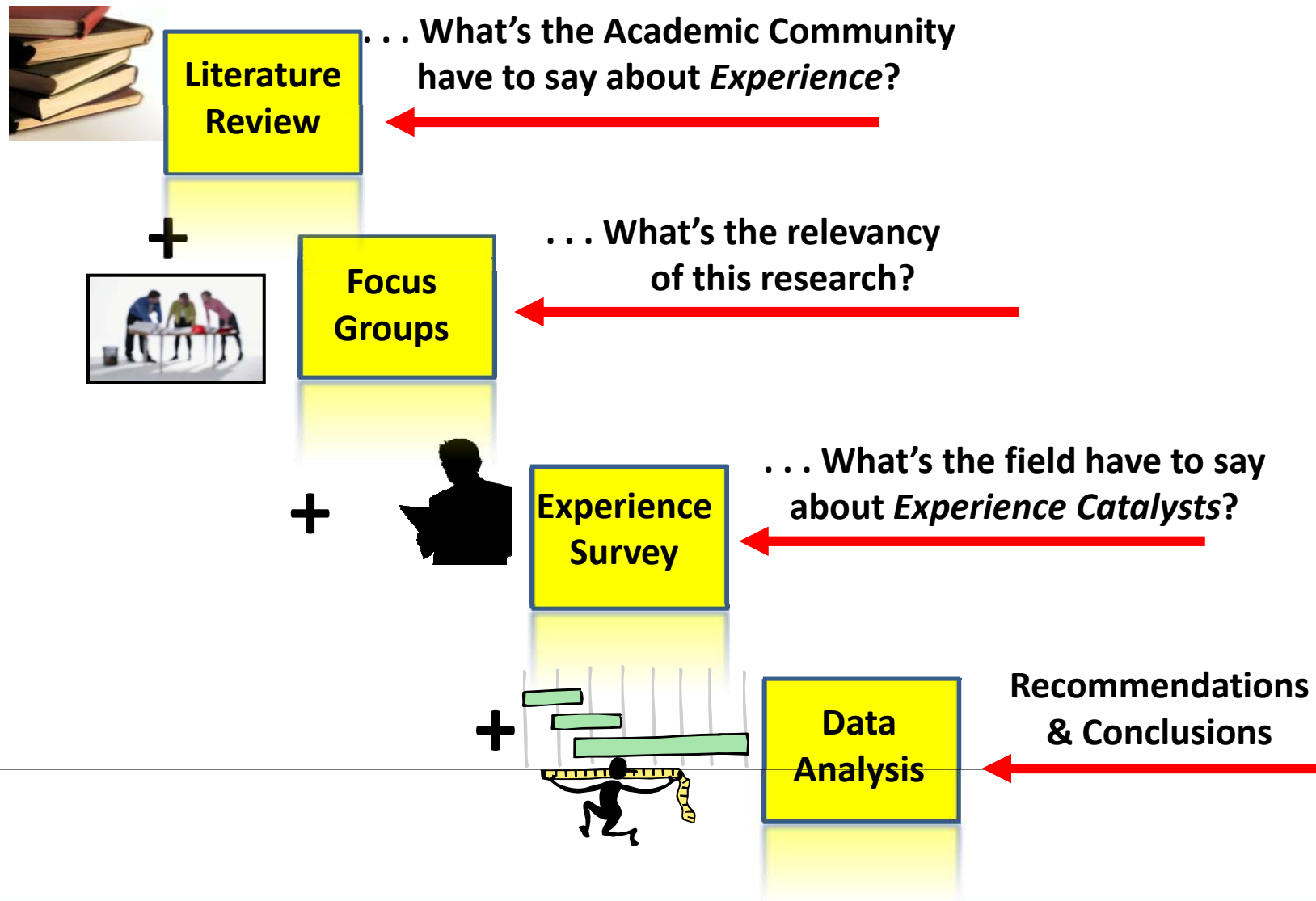
Certification  
Standards

$$Experience = f(x_1, x_2, x_3, x_4 \dots x_n)$$

Experience Factors		
Many Affect the Defense Acquisition Workforce (DAW)		



## Methodology





## Experience Catalysts (EC)



$$EC = \sum_{i=1}^n (\text{Tier } 1_i + \text{Tier } 2_i + \text{Tier } 3_i) - \text{Barriers}_i$$



**Tier 1: Foundational**

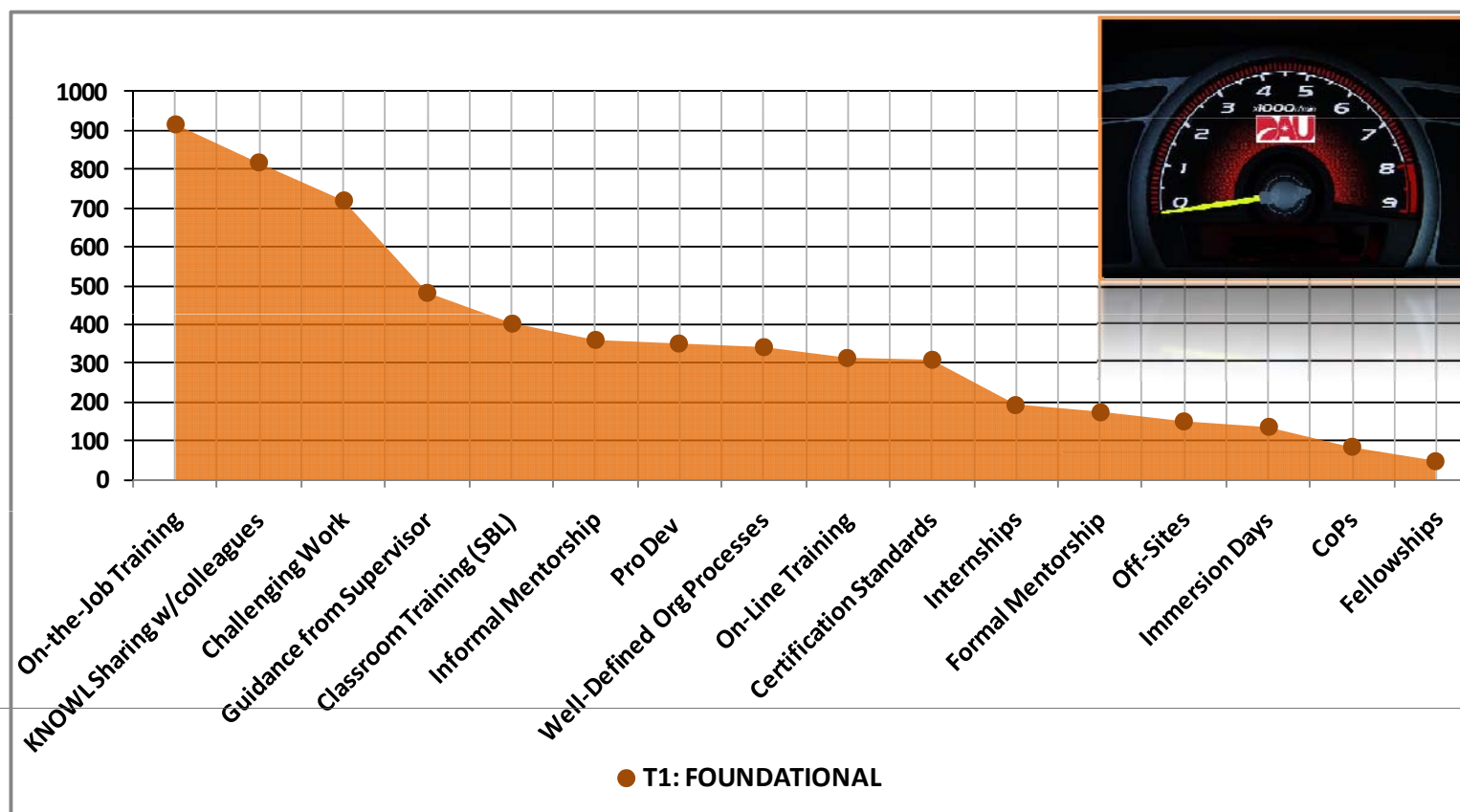


**Tier 2: Enhancers**

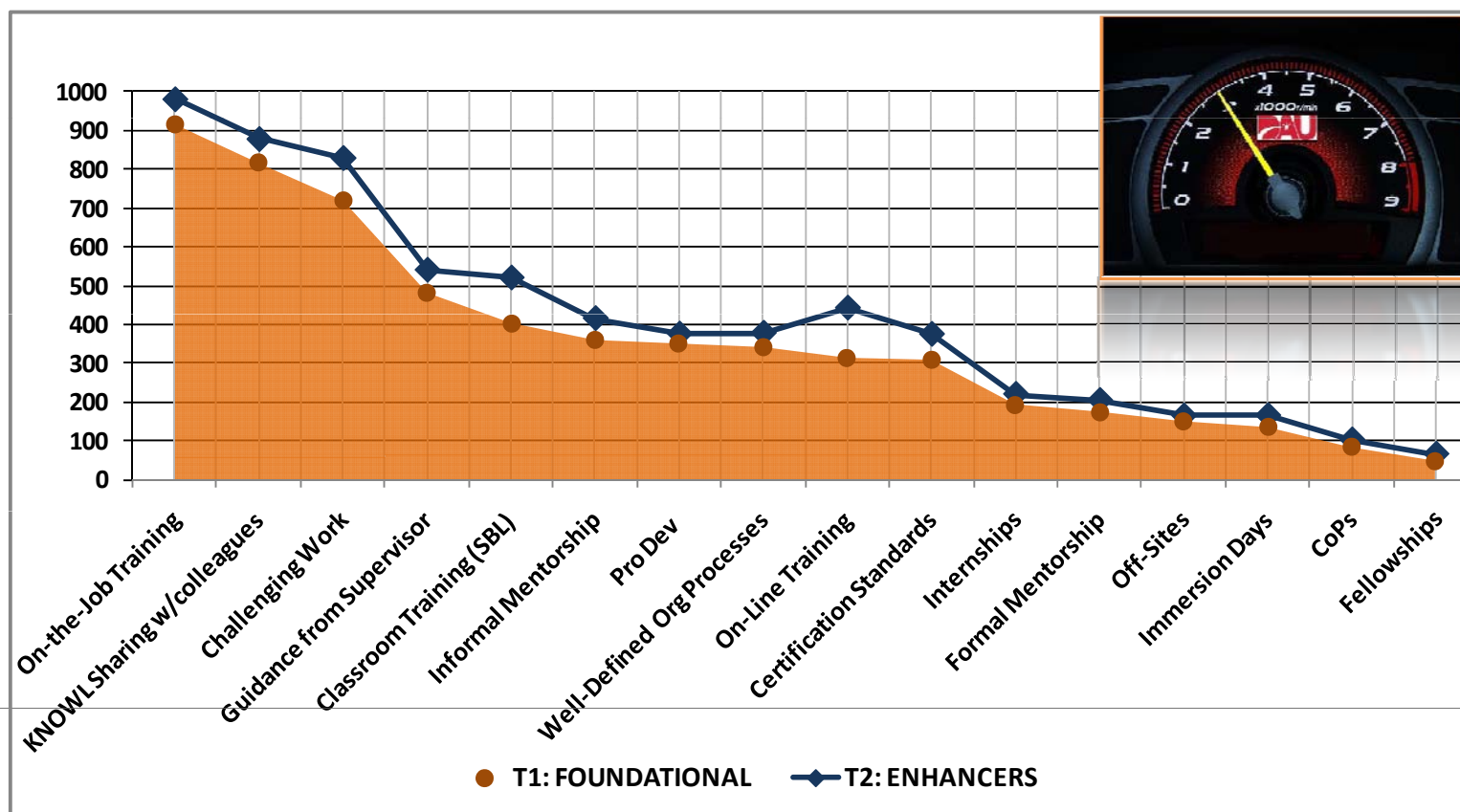


**Tier 3: Accelerators**

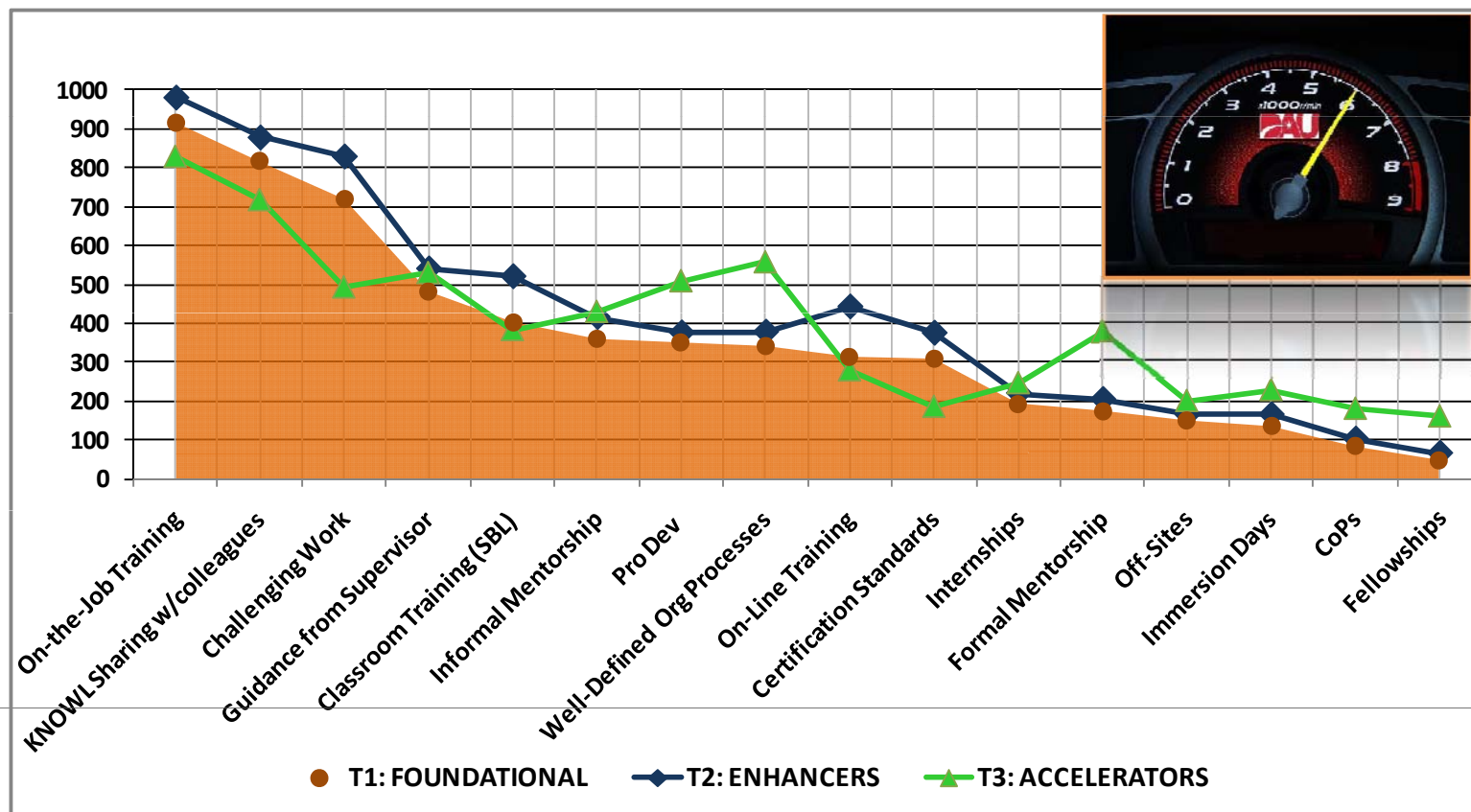
# T1: Foundational



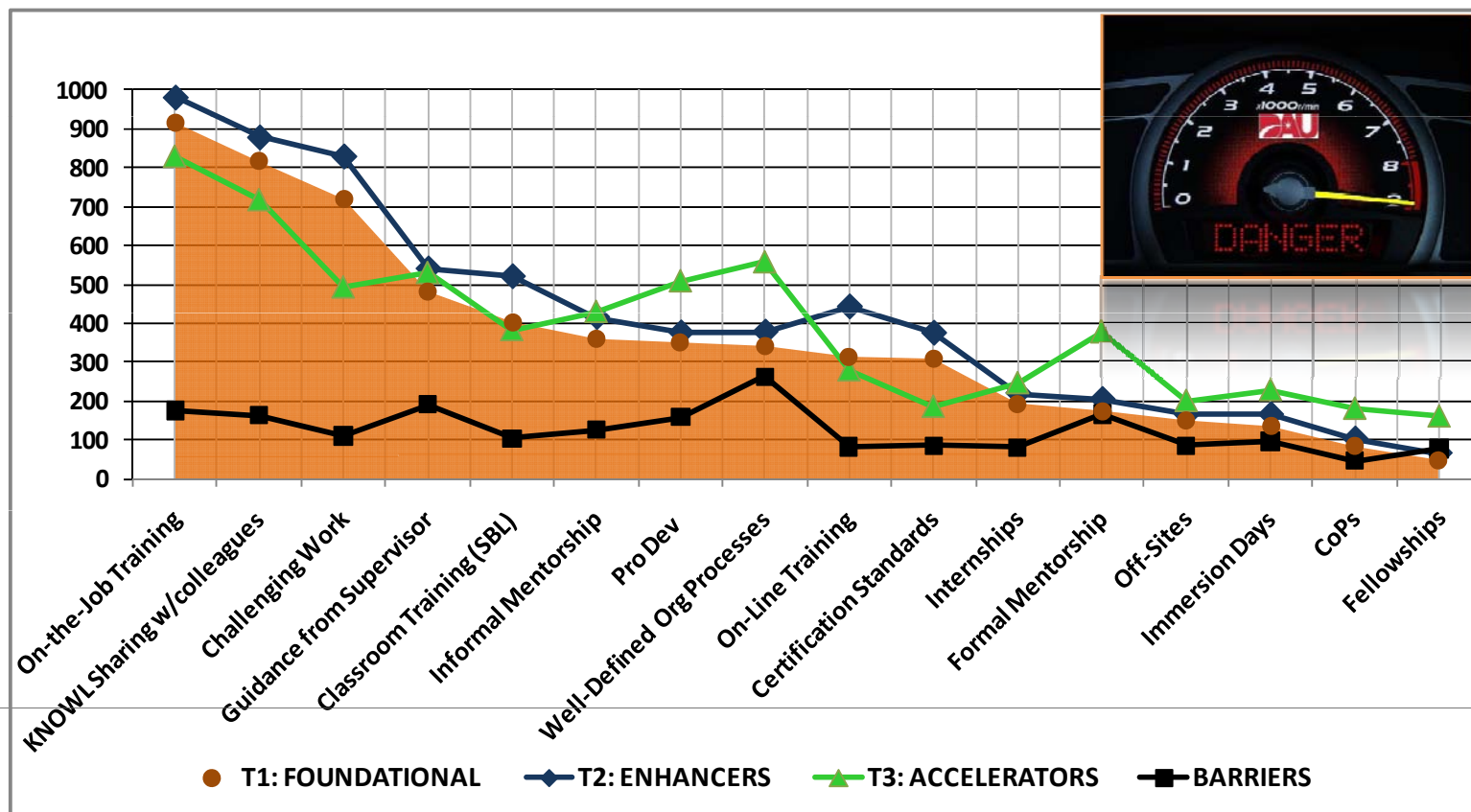
# T1(Foundational), T2 (Enhancers)



# T1(Foundational), T2 (Enhancers), T3 (Accelerators)

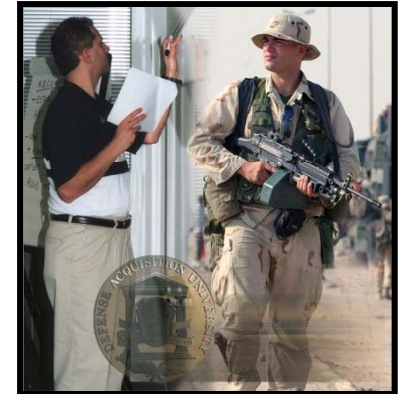


## T1(Foundational), T2 (Enhancers), T3 (Accelerators), Barriers



# Recommendations for Acquisition Business Units

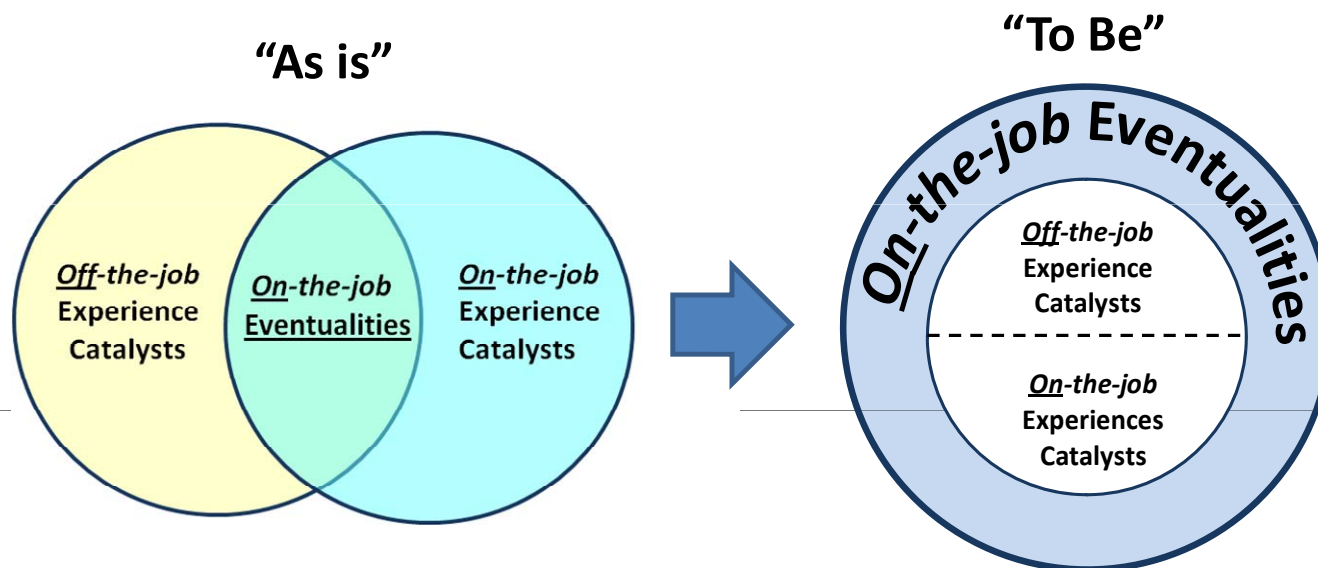
- Codify yourselves as **Learning Organizations**
- Keep the work **challenging** and in perspective
- Capitalize and promote **Knowledge Sharing**
- Get **supervisors** involved in the training process before and after the event
- Clearly articulate and punctuate the effectiveness of organizational **processes**
- Promote and support **professional development**
- Promote **mentorship**
- Recognize the efficacy of **DAWIA** training
- Explore benefits of **Immersion Days** and **Off-sites**
- Leverage **social media**



# Recommendations for Acquisition Training Units



- Continue to tighten the connection between off-the job training and on-the-job training



# Recommendations for Acquisition Training Units



- Maximize **Scenario Based Learning**
- Reinforce the benefits of **certification** standards
- Monitor and exploit the usefulness of all **Knowledge Sharing** mediums including **social media**

Experience is the name every one gives to their mistakes” (Oscar Wilde, 1892)



- The DoD’s acquisition workforce needs the time to practice just like any other profession and can least afford any experience shortfall that results in weapon system delays for warfighters serving in harm’s way.
- Warfighters depend on the DAW to get it right the first time